NAME

asy – asynchronous serial port driver

SYNOPSIS

#include <fcntl.h>
#include <sys/termios.h>
open("/dev/tty*nn*", *mode***);**
open("/dev/ttyd*n*", *mode***);**
open("/dev/cua*n*", *mode***);**

AVAILABILITY

x86

DESCRIPTION

The **asy** module is a loadable STREAMS driver that provides basic support for the standard UARTS that use Intel-8250, National Semiconductor-16450/16550 hardware, together with basic asynchronous communication support. The driver supports those **termio**(7I) device control functions specified by flags in the **c_cflag** word of the **termios** structure and by the **IGNBRK**, **IGNPAR**, **PARMRK**, or **INPCK** flags in the **c_iflag** word of the **termios** structure. All other **termio**(7I) functions must be performed by STREAMS modules pushed atop the driver. When a device is opened, the **ldterm**(7M) and **ttcompat**(7M) STREAMS modules are automatically pushed on top of the stream, providing the standard **termio**(7I) interface.

The character-special devices **/dev/tty00** and **/dev/tty01** are used to access the two standard serial ports (COM1 and COM2) on an x86 system. The **asy** driver supports up to four serial ports, including the standard ports. These **tty***nn* devices have minor device numbers in the range 00-03.

By convention these same devices may be given names of the form **/dev/ttyd***n*, where *n* denotes which line is to be accessed. Such device names are typically used to provide a logical access point for a *dial-in* line being used with a modem.

To allow a single tty line to be connected to a modem and used for both incoming and outgoing calls, a special feature, controlled by the minor device number, is available. By accessing character-special devices with names of the form **/dev/cua***n* it is possible to open a port without the Carrier Detect signal being asserted, either through hardware or an equivalent software mechanism. These devices are commonly known as *dial-out* lines.

APPLICATION PROGRAMMING INTERFACE

Once a **/dev/cua***n* line is opened, the corresponding tty, or ttyd line cannot be opened until the **/dev/cua***n* line is closed; a blocking open will wait until the **/dev/cua***n* line is closed (which will drop Data Terminal Ready, after which Carrier Detect will usually drop as well) and carrier is detected again, and a non-blocking open will return an error. Also, if the **/dev/ttyd***n* line has been opened successfully (usually only when carrier is recognized on the modem) the corresponding **/dev/cua***n* line can not be opened. This allows a modem to be attached to, for example, **/dev/ttyd0** (renamed from **/dev/tty00**) and used for dial-in (by enabling the line for login in **/etc/inittab**) and also used for dial-out (by **tip**(1) or **uucp**(1C)) as **/dev/cua0** when no one is logged in on the line.

IOCTLS

The standard set of **termio ioctl( )** calls are supported by **asy**.

Breaks can be generated by the **TCSBRK**, **TIOCSBRK**, and **TIOCCBRK ioctl( )** calls.

The input and output line speeds may be set to any of the speeds supported by **termio**. The speeds cannot be set independently; when the output speed is set, the input speed is set to the same speed.

ERRORS

An **open( )** will fail if:

ENXIO The unit being opened does not exist.

EBUSY The dial-out device is being opened and the dial-in device is already open, or the dial-in device is being opened with a no-delay open and the dial-out device is already open.

EBUSY The unit has been marked as exclusive-use by another process with a **TIOCEXCL ioctl( )** call.

EINTR The open was interrupted by the delivery of a signal.

FILES

/dev/tty[00-03]	hardwired tty lines
/dev/ttyd[0-3]	dial-in tty lines
/dev/cua[0-3]	dial-out tty lines
/kernel/drv/asy.conf	**asy** configuration file.

SEE ALSO

tip(1), **uucp**(1C), **ldterm**(7M), **termio**(7I), **ttcompat**(7M)

DIAGNOSTICS

asy*n* : silo overflow.
The hardware overrun occurred before the input character could be serviced.

asy*n* : ring buffer overflow.
The driver's character input ring buffer overflowed before it could be serviced.